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7. APPENDIXES

Appendix 1. Viscosity

Tests of Normality

	Concentration	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Viscosity	0%	.294	6	.114	.905	6	.402
	0.3%	.269	6	.198	.886	6	.299
	0.6%	.286	6	.136	.858	6	.182
	0.9%	.274	6	.178	.868	6	.218
	1.2%	.305	6	.084	.822	6	.092

a. Lilliefors Significance Correction

ANOVA

Viscosity

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	179675.201	4	44918.800	3.175E3	.000
Within Groups	353.704	25	14.148		
Total	180028.905	29			

Post Hoc

Homogeneous

Viscosity

Duncan

Concentration	N	Subset for alpha = 0.05				
		1	2	3	4	5
0%	6	1.1406E2				
0.3%	6		1.3634E2			
0.6%	6			1.7354E2		
0.9%	6				2.0708E2	
1.2%	6					3.3416E2
Sig.		1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Appendix 2. Overrun

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Concentration	Statistic	Df	Sig.	Statistic	df	Sig.
Overrun	0%	.274	6	.177	.820	6	.088
	0.3%	.277	6	.166	.747	6	.019
	0.6%	.304	6	.087	.831	6	.110
	0.9%	.311	6	.071	.835	6	.117
	1.2%	.295	6	.113	.849	6	.155

a. Lilliefors Significance Correction

ANOVA

Overrun

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	403.946	4	100.987	10.594	.000
Within Groups	238.303	25	9.532		
Total	642.249	29			

Post Hoc

Homogeneous

Overrun

Duncan

Concentration	N	Subset for alpha = 0.05		
		1	2	3
0.3%	6	73.9969		
0.6%	6	75.1890		
0%	6	76.6736	76.6736	
0.9%	6		80.1424	
1.2%	6			84.0869
Sig.		.168	.063	1.000

Means for groups in homogeneous subsets are displayed.

Appendix 3. Texture

Tests of Normality

	Concentration	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Hardness	0%	.275	6	.175	.865	6	.207
	0.3%	.315	6	.063	.863	6	.198
	0.6%	.279	6	.156	.914	6	.465
	0.9%	.285	6	.139	.802	6	.061
	1.2%	.291	6	.122	.900	6	.377

a. Lilliefors Significance Correction

ANOVA

Hardness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	77.016	4	19.254	120.949	.000
Within Groups	3.980	25	.159		
Total	80.996	29			

Post Hoc

Homogeneous

Hardness

Duncan

Concentration	N	Subset for alpha = 0.05			
		1	2	3	4
1.2%	6	2.0795			
0.9%	6		2.5556		
0.6%	6		2.5948		
0.3%	6			3.6443	
0%	6				6.5147
Sig.		1.000	.866	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Appendix 4. Time to Melt

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Concentration	Statistic	df	Sig.	Statistic	df	Sig.
Time_to_Melt	0%	.275	6	.175	.782	6	.040
	0.3%	.287	6	.133	.837	6	.123
	0.6%	.305	6	.086	.842	6	.136
	0.9%	.293	6	.117	.915	6	.473
	1.2%	.304	6	.089	.884	6	.288

a. Lilliefors Significance Correction

ANOVA

Time_to_Melt

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4686.133	4	1171.533	111.504	.000
Within Groups	262.667	25	10.507		
Total	4948.800	29			

Post Hoc

Homogeneous

Time_to_Melt

Duncan

Concentration	N	Subset for alpha = 0.05				
		1	2	3	4	5
0%	6	54.667				
0.3%	6		64.667			
0.6%	6			71.667		
0.9%	6				84.333	
1.2%	6					88.667
Sig.		1.000	1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

Appendix 5. Ash Content

Tests of Normality

	Concentration	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Ash_Content	0%	.284	6	.141	.921	6	.513
	0.3%	.316	6	.061	.853	6	.167
	0.6%	.316	6	.061	.850	6	.157
	0.9%	.301	6	.095	.775	6	.035
	1.2%	.293	6	.117	.866	6	.213

a. Lilliefors Significance Correction

ANOVA

Ash_Content

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.852	4	.713	1.717	.178
Within Groups	10.384	25	.415		
Total	13.236	29			

Post Hoc

Homogeneous

Ash_Content

Duncan

Concentration	N	Subset for alpha = 0.05	
		1	2
0%	6	4.9055	
0.3%	6	5.2555	5.2555
0.6%	6	5.3277	5.3277
0.9%	6	5.5278	5.5278
1.2%	6		5.8388
Sig.		.138	.163

Means for groups in homogeneous subsets are displayed.

Appendix 6. Calcium Content

Tests of Normality

	Concentration	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Calcium_Content	0%	.290	6	.124	.918	6	.489
	0.3%	.271	6	.190	.903	6	.389
	0.6%	.303	6	.090	.831	6	.110
	0.9%	.302	6	.092	.896	6	.348
	1.2%	.294	6	.113	.911	6	.445

a. Lilliefors Significance Correction

ANOVA

Calcium_Content

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.813	4	.453	10.453	.000
Within Groups	1.084	25	.043		
Total	2.896	29			

Post Hoc

Homogeneous

Calcium_Content

Duncan

Concentration	N	Subset for alpha = 0.05		
		1	2	3
0%	6	.6778		
0.3%	6		.9555	
0.6%	6		1.0500	
0.9%	6		1.1780	1.1780
1.2%	6			1.4222
Sig.		1.000	.091	.053

Means for groups in homogeneous subsets are displayed.

Appendix 7. Sensory Evaluation Result

Ranks

	Concentration	N	Mean Rank
Taste	0%	50	127.50
	0.3%	50	125.50
	0.6%	50	123.50
	0.9%	50	116.50
	1.2%	50	134.50
	Total	250	
Texture	0%	50	116.29
	0.3%	50	106.22
	0.6%	50	145.77
	0.9%	50	120.64
	1.2%	50	138.58
	Total	250	
Aroma	0%	50	123.63
	0.3%	50	127.27
	0.6%	50	121.57
	0.9%	50	127.20
	1.2%	50	127.83
	Total	250	
Overall	0%	50	112.69
	0.3%	50	119.71
	0.6%	50	141.13
	0.9%	50	117.80
	1.2%	50	136.17
	Total	250	

Test Statistics[b,c]

			Taste	Texture	Aroma	Overall
Chi-Square			1.693	10.582	.303	6.127
Df			4	4	4	4
Asymp. Sig.			.792	.032	.990	.190
Monte Carlo Sig.	Sig.		.796[a]	.030[a]	.990[a]	.188[a]
	95% Confidence Interval	Lower Bound	.788	.027	.988	.180
		Upper Bound	.804	.034	.991	.195

a. Based on 10000 sampled tables with starting seed 2000000.

b. Kruskal Wallis Test

c. Grouping Variable: Concentration

7.1. The Result of Taste Attribute

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Taste	0%	50	52.61	2630.50
	0.9%	50	48.39	2419.50
	Total	100		

Test Statistics[b]

			Taste
Mann-Whitney U			1.144E3
Wilcoxon W			2.420E3
Z			-.743
Asymp. Sig. (2-tailed)			.458
Monte Carlo Sig. (2-tailed)	Sig.		.478[a]
	95% Confidence Interval	Lower Bound	.468
		Upper Bound	.488
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.230
		Upper Bound	.247
	Sig.		.238[a]

Test Statistics[b]

			Taste
Mann-Whitney U			1.144E3
Wilcoxon W			2.420E3
Z			-.743
Asymp. Sig. (2-tailed)			.458
Monte Carlo Sig. (2-tailed)	Sig.		.478[a]
	95% Confidence Interval	Lower Bound	.468
		Upper Bound	.488
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.230
		Upper Bound	.247
	Sig.		.238[a]

a. Based on 10000 sampled tables with starting seed 624387341.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Taste	0.9%	50	46.94	2347.00
	1.2%	50	54.06	2703.00
	Total	100		

Test Statistics[b]

			Taste
Mann-Whitney U			1.072E3
Wilcoxon W			2.347E3
Z			-1.253
Asymp. Sig. (2-tailed)			.210
Monte Carlo Sig. (2-tailed)	Sig.		.214[a]
	95% Confidence Interval	Lower Bound	.206
		Upper Bound	.223
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.106
		Upper Bound	.119
	Sig.		.113[a]

a. Based on 10000 sampled tables with starting seed 112562564.

b. Grouping Variable: Concentration

7.2. The Result of Texture Attribute

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0.3%	50	42.64	2132.00
	0.6%	50	58.36	2918.00
	Total	100		

Test Statistics[b]

			Texture
Mann-Whitney U			857.000
Wilcoxon W			2.132E3
Z			-2.765
Asymp. Sig. (2-tailed)			.006
Monte Carlo Sig. (2-tailed)	Sig.		.007[a]
	95% Confidence Interval	Lower Bound	.005
		Upper Bound	.008
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.002
		Upper Bound	.005
	Sig.		.004[a]

a. Based on 10000 sampled tables with starting seed 221623949.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0.3%	50	42.64	2132.00
	0.6%	50	58.36	2918.00

Test Statistics[b]

			Texture
Mann-Whitney U			857.000
Wilcoxon W			2.132E3
Z			-2.765
Asymp. Sig. (2-tailed)			.006
Monte Carlo Sig. (2-tailed)	Sig.		.007[a]
	95% Confidence Interval	Lower Bound	.005
		Upper Bound	.008
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.002
		Upper Bound	.005
	Sig.		.004[a]

a. Based on 10000 sampled tables with starting seed 221623949.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0.3%	50	44.16	2208.00
	1.2%	50	56.84	2842.00
	Total	100		

Test Statistics[b]

			Texture
Mann-Whitney U			933.000
Wilcoxon W			2.208E3
Z			-2.231
Asymp. Sig. (2-tailed)			.026
Monte Carlo Sig. (2-tailed)	Sig.		.024[a]
	95% Confidence Interval	Lower Bound	.021
		Upper Bound	.028
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.010
		Upper Bound	.015
	Sig.		.012[a]

a. Based on 10000 sampled tables with starting seed 303130861.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0%	50	52.38	2619.00
	0.3%	50	48.62	2431.00
	Total	100		

Test Statistics[b]

			Texture
Mann-Whitney U			1.156E3
Wilcoxon W			2.431E3
Z			-.665
Asymp. Sig. (2-tailed)			.506
Monte Carlo Sig. (2-tailed)	Sig.		.516[a]
	95% Confidence Interval	Lower Bound	.506
		Upper Bound	.525
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.254
		Upper Bound	.272
	Sig.		.263[a]

a. Based on 10000 sampled tables with starting seed 92208573.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0%	50	44.77	2238.50
	0.6%	50	56.23	2811.50
	Total	100		

Test Statistics[b]

			Texture
Mann-Whitney U			963.500
Wilcoxon W			2.238E3
Z			-2.018
Asymp. Sig. (2-tailed)			.044
Monte Carlo Sig. (2-tailed)	Sig.		.048[a]
	95% Confidence Interval	Lower Bound	.044
		Upper Bound	.052
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.020
		Upper Bound	.026
	Sig.		.023[a]

a. Based on 10000 sampled tables with starting seed 1335104164.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0%	50	49.42	2471.00
	0.9%	50	51.58	2579.00
	Total	100		

Test Statistics[b]

			Texture
Mann-Whitney U			1.196E3
Wilcoxon W			2.471E3
Z			-.381
Asymp. Sig. (2-tailed)			.703
Monte Carlo Sig. (2-tailed)	Sig.		.710[a]
	95% Confidence Interval	Lower Bound	.702
		Upper Bound	.719
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.350
		Upper Bound	.369
	Sig.		.359[a]

a. Based on 10000 sampled tables with starting seed 329836257.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0%	50	46.22	2311.00
	1.2%	50	54.78	2739.00
	Total	100		

Test Statistics[b]

			Texture
Mann-Whitney U			1.036E3
Wilcoxon W			2.311E3
Z			-1.506
Asymp. Sig. (2-tailed)			.132
Monte Carlo Sig. (2-tailed)	Sig.		.141[a]
	95% Confidence Interval	Lower Bound	.134
		Upper Bound	.147
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.066
		Upper Bound	.076
	Sig.		.071[a]

a. Based on 10000 sampled tables with starting seed 1535910591.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0.6%	50	55.86	2793.00
	0.9%	50	45.14	2257.00
	Total	100		

Test Statistics[b]

			Texture
Mann-Whitney U			982.000
Wilcoxon W			2.257E3
Z			-1.889
Asymp. Sig. (2-tailed)			.059
Monte Carlo Sig. (2-tailed)	Sig.		.060[a]
	95% Confidence Interval	Lower Bound	.056
		Upper Bound	.065
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.027
		Upper Bound	.034
	Sig.		.031[a]

a. Based on 10000 sampled tables with starting seed 1993510611.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0.6%	50	51.82	2591.00
	1.2%	50	49.18	2459.00
	Total	100		

Test Statistics[b]

			Texture
Mann-Whitney U			1.184E3
Wilcoxon W			2.459E3
Z			-.466
Asymp. Sig. (2-tailed)			.641
Monte Carlo Sig. (2-tailed)	Sig.		.647[a]
	95% Confidence Interval	Lower Bound	.638
		Upper Bound	.656
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.315
		Upper Bound	.334
	Sig.		.325[a]

a. Based on 10000 sampled tables with starting seed 1241531719.

b. Grouping Variable: Concentration

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Texture	0.9%	50	46.72	2336.00
	1.2%	50	54.28	2714.00
	Total	100		

Test Statistics[b]

			Texture
Mann-Whitney U			1.061E3
Wilcoxon W			2.336E3
Z			-1.332
Asymp. Sig. (2-tailed)			.183
Monte Carlo Sig. (2-tailed)	Sig.		.173[a]
	95% Confidence Interval	Lower Bound	.165
		Upper Bound	.180
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.083
		Upper Bound	.094
	Sig.		.088[a]

a. Based on 10000 sampled tables with starting seed 562334227.

b. Grouping Variable: Concentration

7.3. The Result of Aroma Attribute

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Aroma	0%	50	50.83	2541.50
	0.6%	50	50.17	2508.50
	Total	100		

Test Statistics[b]

			Aroma
Mann-Whitney U			1.234E3
Wilcoxon W			2.508E3
Z			-.116
Asymp. Sig. (2-tailed)			.908
Monte Carlo Sig. (2-tailed)	Sig.		.915[a]
	95% Confidence Interval	Lower Bound	.909
		Upper Bound	.920
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.452
		Upper Bound	.471
	Sig.		.462[a]

a. Based on 10000 sampled tables with starting seed 2000000.

b. Grouping Variable: Concentration

7.4. The Result of Overall Attribute

Ranks

	Concentration	N	Mean Rank	Sum of Ranks
Overall	0%	50	44.94	2247.00
	0.6%	50	56.06	2803.00
	Total	100		

Test Statistics[b]

			Overall
Mann-Whitney U			972.000
Wilcoxon W			2.247E3
Z			-1.959
Asymp. Sig. (2-tailed)			.050
Monte Carlo Sig. (2-tailed)	Sig.		.055[a]
	95% Confidence Interval	Lower Bound	.050
		Upper Bound	.059
Monte Carlo Sig. (1-tailed)	95% Confidence Interval	Lower Bound	.025
		Upper Bound	.031
	Sig.		.028[a]

a. Based on 10000 sampled tables with starting seed 299883525.

b. Grouping Variable: Concentration

Appendix 8. The Result of Correlation

Correlations

		Concentration	Overrun	Viscosity	Texture	Time_to_Melt
Concentration	Pearson Correlation	1	.641**	.933**	-.857**	.965**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	30	30	30	30	30
Overrun	Pearson Correlation	.641**	1	.717**	-.345	.646**
	Sig. (2-tailed)	.000		.000	.062	.000
	N	30	30	30	30	30
Viscosity	Pearson Correlation	.933**	.717**	1	-.696**	.870**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	30	30	30	30	30
Texture	Pearson Correlation	-.857**	-.345	-.696**	1	-.833**
	Sig. (2-tailed)	.000	.062	.000		.000
	N	30	30	30	30	30
Time_to_Melt	Pearson Correlation	.965**	.646**	.870**	-.833**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	30	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 9. The Calculation of Calcium Efficiency

Concentration 0% = 678 mg

- Concentration 0.3% = $\frac{956}{(300+678)}\ x\ 100\ \% = 97.751\%$
- Concentration 0.6% = $\frac{1050}{(600+678)}\ x\ 100\ \% = 82.160\%$
- Concentration 0.9% = $\frac{1.178}{(900+678)}\ x\ 100\ \% = 74.651\%$
- Concentration 1.2% = $\frac{1422}{(1200+678)}\ x\ 100\ \% = 75.71$

Appendix 10. The Scoresheet of The Hedonic Test

UJI RANKING HEDONIK

Nama : Tanggal :

Produk : Es Krim Susu Kedelai

Atribut : Rasa, Tekstur, Aroma, *overall*

Instruksi :

Berkumurlah dahulu sebelum menguji sampel.

Di hadapan anda terdapat 5 sampel es krim. Tulislah terlebih dahulu kode sampel secara berurutan dari kiri ke kanan. Kemudian cicipi sampel secara berurutan dari kiri ke kanan. Setiap berganti sampel silahkan berkumur. Setelah mencicipi semua sampel, Anda boleh mengulang sampel secukupnya. Urutkan sampel dari yang paling tidak Anda sukai (=1) hingga sampel yang paling Anda sukai (=5).

Kode Sampel	**Rasa**	**Tekstur**	**Aroma**	***Overall***

Terima Kasih

Appendix 11. The Worksheet of The Hedonic Test

Tgl Uji : 20 November 2015

Jenis sampel : Es Krim Susu Kedelai Batch 1

Identifikasi sampel	**Kode**
Kontrol	A
Calcium Lactate (0.3 %)	B
Calcium Lactate (0.6 %)	C
Calcium Lactate (0.9 %)	D
Calcium Lactate (1.2 %)	E

Kode kombinasi urutan penyajian :

ABCDE = 1

EDCBA = 2

ABCED = 3

BACDE = 4

ACBDE = 5

Penyajian :

Booth	**Panelis**	**Kode Sampel**				**Urutan Penyajian**
I	#1, 16, 31, 46	862	245	458	396	522 [1]
II	#2, 17, 32, 47	138	369	163	743	593 [2]
III	#3, 18, 33, 48	854	187	228	824	881 [3]
IV	#4, 19, 34, 49	734	855	121	646	595 [4]
V	#5, 20, 35, 50	653	824	259	859	869 [5]
I	#6, 21, 36,	932	396	843	993	771 [1]
II	#7, 22, 37,	731	553	257	169	874 [2]
III	#8, 23, 38	742	421	226	522	618 [3]
IV	#9, 24, 39	471	397	598	782	313 [4]
V	#10, 25, 40	152	119	417	821	195 [5]
I	#11, 26, 41	371	926	562	788	685 [1]

II	#12, 27, 42	975	973	235	811	761 [2]
III	#13, 28, 43	461	695	249	374	996 [3]
IV	#14, 29, 44	326	194	658	272	222 [4]
V	#15, 30, 45	383	349	468	122	723 [5]

Rekap kode sampel :

Kontrol	862	138	854	734	653	932	731	742	471	152	371	975	461	326	383
0.30%	245	369	187	855	824	396	553	421	397	119	926	973	695	194	349
0.60%	458	163	228	121	259	843	257	226	598	417	562	235	249	658	468
0.90%	396	743	824	646	859	993	169	522	782	821	788	811	374	272	122
1.20%	522	593	881	595	869	771	874	618	313	195	685	761	996	222	723

Appendix 12. The Certificate of Calcium Lactate